Complete Summary

GUIDELINE TITLE

Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults.

BIBLIOGRAPHIC SOURCE(S)

Mandell LA, Bartlett JG, Dowell SF, File TM Jr, Musher DM, Whitney C. Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults. Clin Infect Dis 2003 Dec 1;37(11):1405-33. [235 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

It updates a previous version: Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis 2000 Aug;31(2):347-82.

* * REGULATORY ALERT * *

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- On February 17, 2006, BMS notified the U.S. Food and Drug Administration (FDA) and healthcare professionals about proposed changes to the prescribing information for Tequin (gatifloxacin), including an updating of the existing WARNING on hypoglycemia (low blood sugar) and hyperglycemia (high blood sugar), and a CONTRAINDICATION for use in diabetic patients. The changes also include information identifying other risk factors for developing low blood sugar and high blood sugar, including advanced age, renal insufficiency, and concomitant glucose-altering medications while taking Tequin. See the FDA Web site for more information.
- On June 30, 2006, the Food and Drug Administration notified healthcare professionals and patients that it completed its safety assessment of Ketek (telithromycin), indicated for the treatment of acute exacerbation of chronic bronchitis, acute bacterial sinusitis, and community acquired pneumonia of mild to moderate severity, including pneumonia caused by resistant strep infections. The drug has been associated with rare cases of serious liver injury and liver failure with four reported deaths and one liver transplant after the

administration of the drug. FDA determined that additional warnings are required and the manufacturer is revising the drug labeling to address this safety concern. FDA is advising both patients taking Ketek and their doctors to be on the alert for signs and symptoms of liver problems. Patients experiencing such signs or symptoms should discontinue Ketek and seek medical evaluation, which may include tests for liver function. See the FDA Web site for more information.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Community-acquired pneumonia (CAP) due to infection with the following organisms:

- Streptococcus pneumoniae
- Haemophilus influenzae
- Moraxella catarrhalis
- Anaerobes
- Staphylococcus aureus
- Enterobacteriaceae (coliforms: Escherichia coli, Klebsiella, Proteus, Enterobacter)
- Pseudomonas aeruginosa
- Legionella species
- Mycoplasma pneumoniae
- Chlamydia pneumoniae
- Chlamydia psittaci
- Nocardia species
- Coxiella burnetii
- Influenza A
- Hantavirus

Note: Pneumocystis carinii pneumonia (PCP) is not included in the guidelines for management of CAP in immunocompetent hosts because PCP is seen exclusively in patients with defective cell-mediated immunity.

GUIDELINE CATEGORY

Diagnosis
Management
Treatment

CLINICAL SPECIALTY

Family Practice
Infectious Diseases
Internal Medicine

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide assistance to clinicians in the diagnosis and treatment of community-acquired pneumonia

TARGET POPULATION

Immunocompetent adult patients with community-acquired pneumonia

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnostic Studies

1. Pneumonia severity index
2. Chest radiography, computed tomography (CT) scan
3. Blood cultures and Gram staining
4. Cultures of expectorated sputum (pretreatment specimens)
5. Human immunodeficiency virus (HIV) serological test
6. Oxygen saturation arterial blood gases
7. Tests for the presence of Legionella species (preferably sputum culture and urinary antigen assay)
8. Other non-routine diagnostic tests for specific microbial pathogens (e.g., Chlamydia, hantavirus, mycoplasma, and severe acute respiratory syndrome [SARS] coronavirus)
9. Transtracheal aspiration, transthoracic needle aspiration, and bronchoscopy (for selected patients)

Antibiotic Therapy

1. Amoxicillin
2. Amoxicillin-clavulanate
3. Beta lactam/beta-lactamase inhibitor
4. Cephalosporins (ceftriaxone and cefotaxime)
5. Clindamycin
6. Doxycycline
7. Fluoroquinolone (gatifloxacin, levofloxacin, moxifloxacin, and gemifloxacin)
8. Fluoroquinolone plus cephalosporin

9. Macrolides (azithromycin, clarithromycin, and erythromycin)
10. Macrolide plus amoxicillin-clavulanate
11. Macrolide plus cephalosporin
12. Oral cephalosporins (cefpodoxime, cefprozil and cefuroxime axetil)
13. Penicillin G
14. Trimethoprim-sulfamethoxazole
15. New agents, including telithromycin, gemifloxacin, ertapenem, linezolid

Prevention

1. Influenza vaccine
2. Pneumococcal vaccine

MAJOR OUTCOMES CONSIDERED

- Clinical diagnosis of community-acquired pneumonia
- Response to treatment: subjective response and objective parameters, including respiratory symptoms (cough or dyspnea), fever, the PO_2 level, the peripheral leukocyte count, findings on serial radiographs
- Risk of mortality from community-acquired pneumonia

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of Evidence

I. Evidence from at least one properly randomized, controlled trial
II. Evidence from at least one well-designed clinical trial without randomization, from cohort or case-controlled analytic studies (preferably from more than one center), or from multiple time-series studies or dramatic results from uncontrolled experiments

III. Evidence from opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendation

A. Good evidence to support a recommendation for use
B. Moderate evidence to support a recommendation for use
C. Poor evidence to support a recommendation
D. Moderate evidence to support a recommendation against use
E. Good evidence to support a recommendation against use

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The document has been subjected to external review by peer reviewers as well as by the Infectious Diseases Society of America (IDSA) Practice Guidelines Committee and was approved by the IDSA Council. Guidelines from the following groups were considered:

- The American Thoracic Society (1993)
- The British Thoracic Society (1993)
- The Canadian Infectious Disease Society (1993)
- The Infectious Diseases Society of America (1988)

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Each recommendation includes a ranking for the strength and the quality of evidence supporting it. Definitions of the levels of evidence (I-III) and grades of recommendation (A-E) are repeated at the end of the Major Recommendations field.

Recommendations for management of community-acquired pneumonia (CAP) in immunocompetent adults: summary of prior Infectious Diseases Society of America (IDSA) recommendations of 2000 and updated and new recommendations for 2003 (in bold).

Site of Treatment Decision

The initial site of treatment should be based on a 3-step process: (1) assessment of preexisting conditions that compromise safety of home care; (2) calculation of the pneumonia PORT (Pneumonia Outcome Research Team) Severity Index with recommendation for home care for risk classes I, II, and III; and (3) clinical judgment (A-II).

Hospitalized patients treated with intravenous antibiotics may be changed to oral antibiotics when the patient is clinically improving, is able to ingest drugs, is hemodynamically stable, and has a functioning gastrointestinal tract (A-I).

Discharge criteria: during the 24 h prior to discharge to home, the patient should have no more than 1 of the following characteristics (unless this represents the baseline status): temperature, >37.8 degrees C; pulse, >100 beats/min; respiratory rate, >24 breaths/min; systolic blood pressure, <90 mm Hg; blood oxygen saturation, <90%, and inability to maintain oral intake (B-I).

Laboratory Tests

Chest radiography: All patients with suspected pneumonia should have a chest radiograph (A-II).

General assessment: Patients hospitalized for pneumonia should have a complete blood count; serum blood urea nitrogen, glucose, electrolytes, and liver function testing; and assessment of oxygen saturation (B-II). Persons aged 15–54 years should undergo human immunodeficiency virus (HIV) testing with informed consent (B-II).

Tests for an etiologic agent in ambulatory patients: No tests for an etiologic agent are considered standard for patients who are not hospitalized for pneumonia, but an air-dried slide of a pretreatment deep-cough sputum sample may subsequently prove useful (C-III).

Tests for etiologic agent in hospitalized patients: Patients hospitalized for pneumonia should have 2 pretreatment blood cultures (A-II) (this represents a

change in rating) and expectorated sputum Gram stain and culture (B-II). The expectorated sputum specimen should be a deep-cough specimen obtained before antibiotic treatment that is rapidly transported and processed within a few hours of collection (B-II). Cytologic criteria should be used as a contingency for sputum culture, except with culture for Mycobacteria and Legionella species (A-I). Transtracheal aspiration, transthoracic aspiration, and bronchoscopy should be reserved for selected patients and done by physicians with appropriate expertise (B-III). Testing of induced sputum has established merit only for detection of Mycobacterium tuberculosis and Pneumocystis carinii (A-I).

Recommended Agent-specific Tests

Legionella: Testing for Legionella species is appropriate for any patient hospitalized with enigmatic pneumonia (C-II). This test is recommended for patients with enigmatic pneumonia sufficiently severe to require care in the intensive care unit, in the presence of an epidemic, or failure to respond to a beta-lactam (A-III).

Chlamydophila pneumoniae: Acceptable diagnostic methods for C. pneumoniae pulmonary infections are the demonstration of a 4-fold increase in immunoglobulin G (IgG) titer or single IgM titer of $\geq$1:16 using a microimmunofluorescence serologic test or isolation in tissue culture or a polymerase chain reaction (PCR) assay of respiratory secretions using reagents that satisfy optimal criteria for validation (B-III).

Streptococcus pneumoniae: Standard methods are blood culture and sputum for Gram stain and culture (B-II). The pneumococcal urinary antigen assay is an acceptable test to augment the standard diagnostic methods of blood culture and sputum Gram stain and culture, with the potential advantage of rapid results similar to those for sputum Gram stain (B-II).

Influenza virus: A rapid antigen detection assay for influenza virus is recommended for rapid detection of this pathogen for epidemiologic purposes and/or treatment (CII). Tests that distinguish between influenza A and B are generally preferred (C-III).

Respiratory syncytial virus: Antigen detection tests are readily available but are insensitive for detecting infections in adults and are not generally recommended for adults (C-III).

Means of diagnosis for category A agents of bioterrorism: for inhalation anthrax, blood culture (A-I) and chest computed tomography (CT) scan (A-I); for pneumonic plague, blood culture and Gram stain and culture of sputum samples (A-I); and for tularemic pneumonia, culture of blood and sputum or pharynx in a biocontainment level 3 laboratory (A-I).

Severe Acute Respiratory Syndrome (SARS): Diagnostic criteria include clinical and epidemiologic features and may include diagnostic studies for the coronavirus (A-I). Recommended virologic studies for laboratory confirmation are (1) culture for SARS coronavirus, (2) detection of antibody during the acute phase of illness or any time after onset, or (3)

detection of SARS coronavirus ribonucleic acid (RNA) confirmed by second polymerase chain reaction (PCR) assay by using a second aliquot of the specimen or a different set of primers. (The panel considers it premature to rate the use of virologic tests.)

Interpretation of Cultures

Etiologic diagnosis is established with recovery of a probable etiologic agent from an uncontaminated specimen (blood, pleural fluid, transtracheal aspirate, or transthoracic aspirate) or with recovery from respiratory secretions of a likely pathogen that does not colonize the upper airways (e.g., M. tuberculosis, Legionella species, influenza virus, respiratory syncytial virus, parainfluenza virus, adenovirus, SARS coronavirus, P. carinii, Histoplasma capsulatum, Coccidioides immitis, and Blastomyces dermatidis) (A-I).

Etiologic diagnosis is probable with a compatible clinical syndrome combined with detection by stain or culture of a likely pulmonary pathogen in respiratory secretions (expectorated sputum or bronchoscopic secretions); with culture, there should be significant growth with quantitative culture or moderate or heavy growth with semiquantitative culture (B-II).

Serologic tests are usually not helpful in the initial evaluation (C-III) but may be useful for epidemiologic surveillance.

Deoxyribonucleic acid (DNA) probes and nucleic acid amplification assays are under development especially for C. pneumoniae, M. pneumoniae, and Legionella species. These tests are not currently recommended because reagents have not had U.S. Food and Drug Administration (FDA) clearance; availability is largely restricted to research laboratories, and studies show results that are variable (C-III).

Antimicrobial Treatment

Pathogen-specific Therapy

S. pneumoniae: Susceptibility of S. pneumoniae isolates to cefotaxime and ceftriaxone in nonmeningeal infections should be defined as a minimum inhibitory concentration (MIC) of $\leq$1 micrograms/mL, intermediate should be defined as an MIC of 2 micrograms/mL, and resistant should be defined as an MIC of $\geq$4 micrograms/mL (A-III). Cefotaxime or ceftriaxone are the preferred parenteral agents for treatment of pneumococcal pneumonia without meningitis for strains with reduced susceptibility to penicillin but with MICs of cefotaxime or ceftriaxone of <2 micrograms/mL (B-III). Amoxicillin is the preferred antibiotic for oral treatment of pneumococcal pneumonia involving susceptible strains (B-II).

Initial empiric therapy prior to availability of culture data for a patient ill enough to require admission to a hospital ward can be with a beta-lactam plus macrolide combination or a respiratory fluoroquinolone alone (A-I). If sufficiently ill to need intensive care unit (ICU) management and if

Pseudomonas infection is not a concern, a combination of a beta-lactam plus either a macrolide or a respiratory fluoroquinolone should be used (B-III). Once culture data are available and it is known that the patient has pneumococcal pneumonia with bacteremia without evidence to support infection with a copathogen, treatment will depend upon in vitro susceptibility results. If the isolate is penicillin susceptible, a beta-lactam (penicillin G or amoxicillin) alone may be used (B-II). If the isolate is penicillin resistant, cefotaxime, ceftriaxone, or a respiratory fluoroquinolone or other agent indicated by in vitro testing may be used (A-III).

Legionella: Treatment for Legionnaires' disease is appropriate when there is epidemiologic evidence of this disease, despite negative diagnostic test results (B-III). The preferred treatment for Legionnaires' disease for hospitalized patients is azithromycin or a fluoroquinolone (moxifloxacin, gatifloxacin, and levofloxacin; gemifloxacin is only available as an oral formulation) (B-II). For patients who do not require hospitalization, acceptable antibiotics include erythromycin, doxycycline, azithromycin, clarithromycin, or a fluoroquinolone (A-II). Treatment should be initiated as rapidly as is feasible (A-II).

Influenza: Early treatment (within 48 h after onset of symptoms) is effective in the treatment of influenza A using amantadine, rimantadine, oseltamivir, or zanamivir and is effective in the treatment of influenza B using oseltamivir and zanamivir (B-I). Use of these drugs is not recommended for uncomplicated influenza with a duration of symptoms of >48 h (D-I), but these drugs may be used to reduce viral shedding in hospitalized patients or for influenza pneumonia (C-III).

Herpes viruses: Pneumonia caused by varicella zoster virus or herpes simplex virus should be treated with parenteral acyclovir (A-II).

Other viruses: There is no antiviral agent with established efficacy for the treatment of adults with pulmonary infections involving parainfluenza virus, respiratory syncytial virus, adenovirus, metapneumovirus, the SARS agent, or Hantavirus (D-I).

Empiric Therapy

See Table 1 below for initial therapy recommendations.

Empiric treatment of suspected bacterial superinfection of influenza should provide activity against S. pneumoniae, Staphylococcus aureus, and Haemophilus influenzae with antibiotics such as amoxicillin-clavulanate, cefpodoxime, cefprozil, cefuroxime, or a respiratory fluoroquinolone (B-III).

Fluoroquinolones (gatifloxacin, gemifloxacin, levofloxacin, and moxifloxacin) are recommended for initial empiric therapy of selected outpatients with CAP (A-I). Other options (macrolides and doxycycline) are generally preferred for uncomplicated infections in outpatients (A-I). Fluoroquinolones (gatifloxacin, gemifloxacin, levofloxacin, and

moxifloxacin) may be used as monotherapy for patients with CAP who are admitted to a hospital ward (A-I). With the exception of gemifloxacin (no intravenous formulation), they may be used as part of a combination for patients with CAP admitted to an ICU (C-III).

A macrolide is recommended as monotherapy for selected outpatients, such as those who were previously well and not recently treated with antibiotics (A-I). A macrolide plus a beta-lactam is recommended for initial empiric treatment of outpatients in whom resistance is an issue and for hospitalized patients (A-I).

Telithromycin may have a role as an alternative to macrolides for treatment of patients with CAP. At this time, however, it is not yet approved by the FDA.

Special Populations and Circumstances

SARS: Health care workers must be vigilant in recognizing SARS because of important epidemiologic implications, which include the potential for rapid spread to close contacts, including health care workers and household contacts (A-III). The major therapeutic intervention is supportive care (B-III). Preventive efforts include proper precautions in patients with suspected or established SARS. These include standard precautions (hand hygiene), contact precautions (use of gowns, goggles, and gloves), and airborne precautions (use of negative-pressure rooms and fit-tested N95 respirators) (A-I).

Elderly patients: Antimicrobial selection for elderly patients with CAP is the same as for all adults with CAP (B-III).

Bioterrorism: Physicians should know the clues to bioterrorism and the appropriate mechanisms to alert public health officials in cases of suspected bioterrorism (A-III). Recommended diagnostic tests and management guidelines are those of the Johns Hopkins Center for Biodefense Strategies and of the Centers for Disease Control and Prevention (CDC), as modified for the specific outbreak (A-I).

Performance Indicators

Blood cultures prior to antibiotic therapy in patients hospitalized for pneumonia (B-III).

Antibiotic therapy should be initiated within 4 h after registration for hospitalized patients with CAP (B-III).

Smoking cessation should be a goal for persons hospitalized with CAP who smoke (B-II).

Legionella tests (culture and/or urinary antigen assay) for 50% of patients who are hospitalized in the ICU for severe enigmatic pneumonia (A-III).

Assessment of oxygenation by arterial blood-gas testing or pulse oximetry within 8 h after admission (A-III).

Demonstration of an infiltrate by chest radiograph or other imaging techniques in all patients who have an International Classification of Diseases (ICD)-9 code diagnosis of CAP and who do not have acquired immune deficiency syndrome (AIDS) or neutropenia (A-I).

Prevention of CAP

All persons ≥50 years, others at risk for influenza complications, and household contacts of high-risk persons should receive inactivated influenza vaccine, as recommended by the Advisory Committee on Immunization Practices (ACIP) (A-I). The injected inactivated vaccine is the preferred formulation for most persons at risk of complications associated with influenza, for household contacts of high-risk persons, and for health care workers (A-I). The intranasally administered live, attenuated vaccine (FluMist; Aventis) is an alternative vaccine formulation for some persons aged 5 to 49 years without chronic underlying diseases, including immunodeficiency, asthma, and chronic medical conditions (C-I). Influenza vaccine should be offered to persons at hospital discharge or during outpatient treatment during the fall and winter (C-III). Health care workers in inpatient and outpatient settings and long-term care facilities should receive annual influenza immunization (A-I).

Pneumococcal polysaccharide vaccine (Pneumovax; MedImmune [marketed by Wyeth in the United States]) is recommended for use, according to current ACIP guidelines, including use for persons aged >65 years and for those with selected high-risk concurrent diseases (B-II). Vaccination may be done either at hospital discharge or during outpatient treatment (C-III).

Table 1. Initial empiric therapy for suspected bacterial community-acquired pneumonia (CAP) in immunocompetent adults

Patient variable	Preferred treatment options
Outpatient	
Previously healthy	
No recent antibiotic therapy	A macrolide[a] or doxycycline
Recent antibiotic therapy[b]	A respiratory fluoroquinolone[c] alone, an advanced macrolide[d] plus high-dose amoxicillin,[e] or an advanced macrolide plus high-dose amoxicillin-clavulanate[f]
Comorbidities (chronic obstructive pulmonary disease (COPD), diabetes, renal or congestive heart	

Patient variable	Preferred treatment options
failure, or malignancy)	
No recent antibiotic therapy	An advanced macrolide[d] or a respiratory fluoroquinolone
Recent antibiotic therapy[b]	A respiratory fluoroquinolone[c] alone or an advanced macrolide plus a beta-lactam[g]
Suspected aspiration with infection	Amoxicillin-clavulanate or clindamycin
Influenza with bacterial superinfection	A beta-lactam[g] or a respiratory fluoroquinolone
Inpatient	
Medical ward	
No recent antibiotic therapy[b]	A respiratory fluoroquinolone alone or an advanced macrolide plus a beta-lactam[h]
Recent antibiotic therapy[b]	An advanced macrolide plus a beta-lactam or a respiratory fluoroquinolone alone (regimen selected will depend on nature of recent antibiotic therapy)
ICU	
Pseudomonas infection is not an issue	A beta-lactam[h] plus either an advanced macrolide or a respiratory fluoroquinolone
Pseudomonas infection is not an issue but patient has a beta-lactam allergy	A respiratory fluoroquinolone, with or without clindamycin
Pseudomonas infection is an issue[i]	Either (1) an antipseudomonal agent[j] plus ciprofloxacin, or (2) an antipseudomonal agent plus an aminoglycoside[k] plus a respiratory fluoroquinolone or a macrolide
Pseudomonas infection is an issue but the patient has a beta-lactam allergy	Either (1) aztreonam plus levofloxacin,[l] or (2) aztreonam plus moxifloxacin or gatifloxacin, with or without an aminoglycoside
Nursing home	
Receiving treatment in nursing home	A respiratory fluoroquinolone alone or amoxicillin-clavulanate plus an advanced macrolide

Patient variable	Preferred treatment options
Hospitalized	Same as for medical ward and ICU

[a] Erythromycin, azithromycin, or clarithromycin.

[b] That is, the patient was given a course of antibiotic(s) for treatment of any infection within the past 3 months, excluding the current episode of infection. Such treatment is a risk factor for drug-resistant Streptococcus pneumoniae and possibly for infection with gram-negative bacilli. Depending on the class of antibiotics recently given, one or other of the suggested options may be selected. Recent use of a fluoroquinolone should dictate selection of a nonfluoroquinolone regimen, and vice versa.

[c] Moxifloxacin, gatifloxacin, levofloxacin, or gemifloxacin (oral gemifloxacin only, which was approved by the US Food and Drug Administration on 4 April 2003 and which is the only fluoroquinolone approved for multidrug-resistant S. pneumoniae; not yet marketed).

[d] Azithromycin or clarithromycin.

[e] Dosage, 1 g po t.i.d.

[f] Dosage, 2 g po b.i.d.

[g] High-dose amoxicillin, high-dose amoxicillin-clavulanate, cefpodoxime, cefprozil, or cefuroxime.

[h] Cefotaxime, ceftriaxone, ampicillin-sulbactam, or ertapenem; ertapenem was recently approved for such use (in once-daily parenteral treatment), but there is little experience thus far.

[i] The antipseudomonal agents chosen reflect this concern. Risk factors for Pseudomonas infection include severe structural lung disease (e.g., bronchiectasis), and recent antibiotic therapy or stay in hospital (especially in the ICU). For patients with CAP in the ICU, coverage for S. pneumoniae and Legionella species must always be assured. Piperacillin-tazobactam, imipenem, meropenem, and cefepime are excellent beta-lactams and are adequate for most S. pneumoniae and Haemophilus influenzae infections. They may be preferred when there is concern for relatively unusual CAP pathogens, such as Pseudomonas aeruginosa, Klebsiella species, and other gram-negative bacteria.

[j] Piperacillin, piperacillin-tazobactam, imipenem, meropenem, or cefepime.

[k] Data suggest that elderly patients receiving aminoglycosides have worse outcomes.

[l] Dosage for hospitalized patients, 750 mg q.d.

Definitions:

Quality of Evidence

I. Evidence from at least one properly randomized, controlled trial
II. Evidence from at least one well-designed clinical trial without randomization, from cohort or case-controlled analytic studies (preferably from more than one center), or from multiple time-series studies or dramatic results from uncontrolled experiments
III. Evidence from opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees

Strength of Recommendation

A. Good evidence to support a recommendation for use
B. Moderate evidence to support a recommendation for use
C. Poor evidence to support a recommendation
D. Moderate evidence to support a recommendation against use
E. Good evidence to support a recommendation against use

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for quality for each recommendation in the guideline document (see "Major Recommendations" section).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Accurate diagnosis and appropriate treatment of community acquired pneumonia
- Appropriate utilization of empiric antibiotic therapy for community acquired pneumonia
- Appropriate utilization of antibiotics and clinical resources

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

It should be acknowledged that no set of standards can be constructed to deal with the multitude of variables that influence decisions regarding site of care, diagnostic evaluation, and selection of antibiotics. Thus, these standards should not supplant good clinical judgment.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Quality Measures

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Mandell LA, Bartlett JG, Dowell SF, File TM Jr, Musher DM, Whitney C. Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults. Clin Infect Dis 2003 Dec 1;37(11):1405-33. [235 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2000 Feb (revised 2003 Dec 1)

GUIDELINE DEVELOPER(S)

Infectious Diseases Society of America - Medical Specialty Society

SOURCE(S) OF FUNDING

Infectious Diseases Society of America

GUIDELINE COMMITTEE

Infectious Diseases Society of America (IDSA) Practice Guidelines Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Authors: Mandell LA, Bartlett JG, Dowell SF, File TM Jr, Musher DM, Whitney C

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Conflict of Interest Disclosure

Lionel A. Mandell has received research funding from Bayer, Bristol-Myers Squibb, and Pharmacia; has been a consultant for Bayer, Pfizer, Aventis, Ortho-McNeil, and Janssen-Ortho; and has been on the speakers' bureau for Pfizer, Aventis, Wyeth, Ortho-McNeil, and Bayer.

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GUIDELINE STATUS

This is the current release of the guideline.

It updates a previous version: Bartlett JG, Dowell SF, Mandell LA, File Jr TM, Musher DM, Fine MJ. Practice guidelines for the management of community-acquired pneumonia in adults. Infectious Diseases Society of America. Clin Infect Dis 2000 Aug;31(2):347-82.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Infectious Diseases Society of America (IDSA) via the Clinical Infectious Diseases journal Web site:

- HTML Format
- Portable Document Format (PDF)

Print copies: Available from Infectious Diseases Society of America, 66 Canal Center Plaza, Suite 600, Alexandria, VA 22314.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Kish MA. Guide to development of practice guidelines. Clin Infect Dis 2001 Mar 15;32(6):851-4.

Electronic copies: Available from the Infectious Diseases Society of America (IDSA) Web site.

Print copies: Available from Infectious Diseases Society of America, 66 Canal Center Plaza, Suite 600, Alexandria, VA 22314.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on January 15, 1999. The information was verified by the guideline developer as of March 22, 1999. An updated summary was completed by ECRI on April 20, 2001. The updated information was verified by the guideline developer as of June 29, 2001. This summary was updated by ECRI on April 20, 2004. This summary was updated by ECRI on January 27, 2006 following the U.S. Food and Drug Administration (FDA) advisory on Ketek (telithromycin). This summary was updated by ECRI on February 21, 2006 following the U.S. Food and Drug Administration (FDA) advisory on Tequin (gatifloxacin). This summary was updated by ECRI on July 3, 2006 following the updated U.S. Food and Drug Administration (FDA) advisory on Ketek (telithromycin).

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